

**Clear Creek
Second Outlet Channel
and Gated Structure**



Harris County
Flood Control District

Why They're Here

Located near S.H. 146 just north of the Clear Lake natural outlet at Kemah/Seabrook, the Clear Creek second outlet channel was built to allow the discharge of watershed runoff from Clear Lake into Galveston Bay so lake levels are not increased due to a proposed upstream Clear Creek channel enlargement. Gates were included to reduce sediment inflow into the channel, lessen impacts of currents on navigation adjacent to the second outlet channel, and to prevent changes in tidal inflow and salinity intrusion through the second outlet from causing changes to the existing hydraulic and environmental conditions of Clear Lake. The gates do not provide tidal or hurricane protection for lakeside or Clear Creek communities.

The future of the upstream channel enlargement is now under review by the Corps of Engineers and local sponsors. Regardless of the future of the channel project, the second outlet gates will be operated by the Harris County Flood Control District in an effort to reduce flood levels produced from rainfall runoff.



**Aerial View of Second Outlet & Gated Structure
(shading added to show channel alignment)**



**Panoramic View of
Clear Creek Gated Structure
Under Construction**

Construction and Operation

The second outlet channel and gated structure were constructed by the U.S. Army Corps of Engineers. Construction on the Second Outlet Channel began in August 1996, and was completed in July 1997. Gated Structure construction began in May 1989, and was completed in March 1991. It was rehabilitated in 1997.

Operations of the second outlet channel and gated structure were transferred from the Corps of Engineers to the Harris County Flood Control District on March 11, 1998, and accepted by the District on April 21, 1998. In addition, Galveston County shares in the operation and maintenance cost of the facility.

Storm Operation Plan

The District's Flood Watch staff monitors the conditions in the watershed using the Harris County Office of Emergency Management (HCOEM) rainfall and stage gages in the watershed, as well as information available from other sources. The lake level rise is estimated using actual and predicted rainfall, actual water levels in the lake and upstream, and tide forecasts (see map to right showing gage locations in the watershed). Using the operation criteria, the Flood Watch Leader assesses the situation and provides instructions directly to the Gate Operator.

Operation Criteria

THE GATES ARE OPENED

- When Clear Lake's elevation is above +3.0 feet NGVD and exceeds Galveston Bay's elevation by 0.5 feet or more.
- When the Clear Lake elevation is higher than the Galveston Bay elevation by any amount, and a rise in the Clear Lake elevation is anticipated above +3.0 feet NGVD from rainfall exceeding 3 inches.
- At least twice a year, during a storm ebb tide associated with passage of either a cold front or "norther," spring tide recession, or flood relief, and to be used as an aid for flushing deposited sediment from the second outlet channel.
- Once per month to exercise gates, actuators and generator. This may be cancelled if gates have been operated within the month for reasons listed above.

THE GATES ARE CLOSED

- When the Clear Lake elevation is equal to or lower than the Galveston Bay elevation.
- When the Clear Lake elevation is below +3.0 feet NGVD.
- When sustained winds exceed, or are forecasted by the NWS to exceed, 55 mph.
- When Clear Lake's elevation is rising and is anticipated to exceed +8.3 feet NGVD.
- When the Galveston Bay elevation is forecasted by the NWS to exceed +6.0 feet NGVD.

Facts...

SECOND OUTLET CHANNEL

Length: 5130 feet (about one mile)
Bottom: 15 feet deep, 120 - 140 feet wide
Top: 200 - 240 feet wide

GATED STRUCTURE

Total Length: 141 feet
Gates: 6 roller gates, 20' wide x 21' high each
Powered by: Electric motors
Power Source: Reliant Energy HL&P (generator backup)

OPERATION

Normal Condition: All six gates closed
Potential Flood: All six gates open (no partial opening)
Open/Close Time: 1.5 hrs. for all six gates (done in pairs)

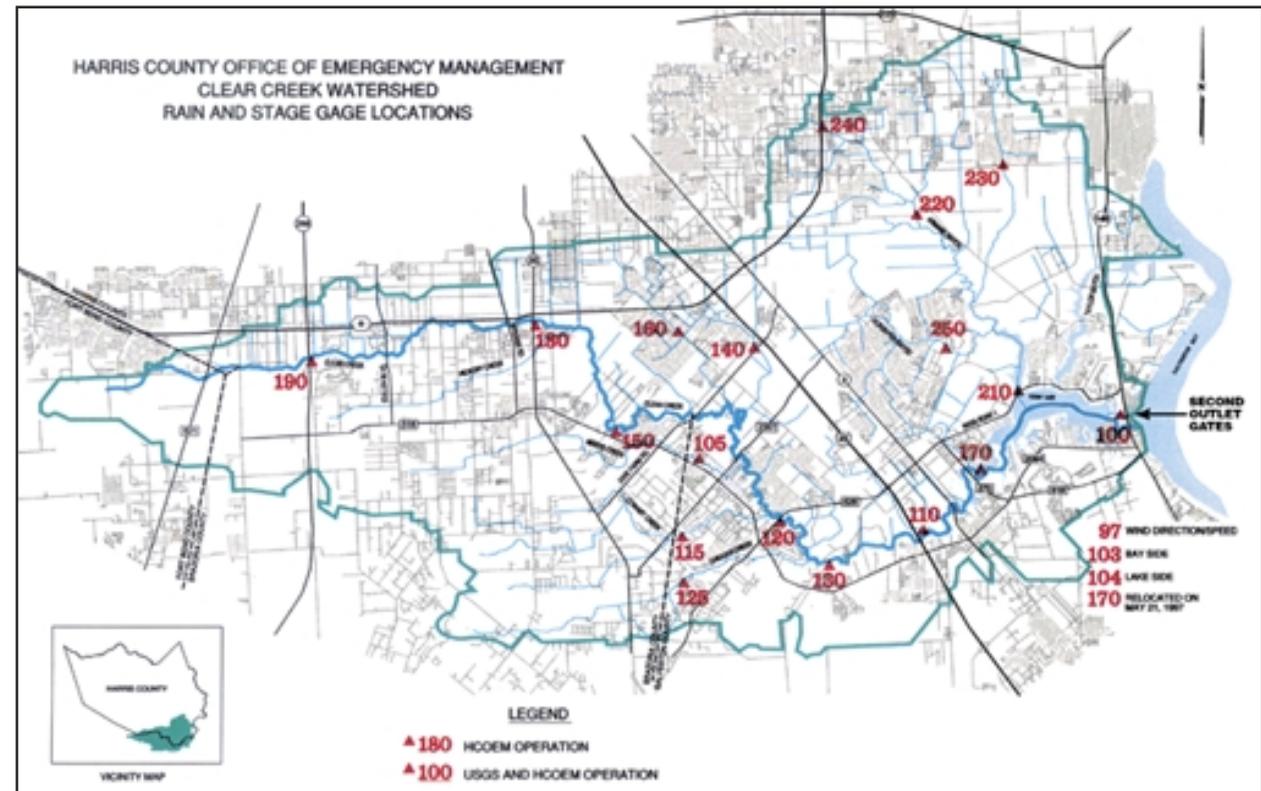
Gate Status Check

To check the status of the Clear Creek gates at any time, call the following phone number for information:

713-684-4040
Select Mailbox Option 1

For general questions, call the Harris County Flood Control District offices at:

713-684-4000



Area map of the Clear Creek watershed and the gage locations for monitoring rain and water levels along Clear Creek, Armand Bayou and other tributaries



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